



**Invitation to Bid: Tree Planting on the Church Street Marketplace District,
from the Marketplace Department, City of Burlington**

Issue date: Wednesday, December 2, 2015

Due Date: Monday, December 21, 2015

The Marketplace Department, a department of the City of Burlington, invites bids for Church Street Marketplace District tree planting project. Sealed bids from pre-qualified contractors shall be accepted until 5:00 PM Monday, December 21, 2015 by the Marketplace Department office, 2 Church Street, Burlington Vermont 05401. Bid opening will occur immediately after the bid submittal deadline. The time of receiving and opening bids may be postponed due to emergencies or unforeseen conditions.

DIRECTIONS TO OUR OFFICE: The Marketplace Department office is located at 2 Church Street, Richardson Place Building, on Church Street's top block (intersection of Church and Pearl Streets.) From Church Street's east side, look for sign on 2 Church Street building: "Richardson Place Office Entrance." Sign located between Top of the Block Sandwich Shop and Downtown Danform Shoes. Walk through double doors. Take stairway or elevator up to second floor. Turn left to reach our offices, located in Suite 2A, right next to elevator.

Sealed Bids shall be marked in the lower left hand corner:
Bid Documents Church Street Marketplace Tree Planting.

Each bid must be accompanied by a certified check payable to the City of Burlington for five percent (5%) of the total amount of the Bid. A Bid bond may be used in lieu of a certified check.

This contract is subject to the Burlington Women in Construction Trades, the Burlington Pre-Qualification of Construction Contractors, the Burlington Livable Wage Ordinance, Union Deterrence, and Outsourcing Ordinances. No bid will be accepted without a signed statement of intent to comply with these ordinances and a filled out Pre-Qualification of Construction Contractors Application.

PRE-QUALIFICATION OF CONTRACTORS: All bidders on this project shall be prequalified by the City of Burlington.

For City of Burlington pre-qualification shall be submitted by interested Bidders a minimum of 5 days before the Bid Due Date unless they are already qualified with the City of Burlington under a prior project. A Pre-qualification Application is included with these Bid Documents. Please contact the redmond@burlington.gov with questions.

SECTION 1: PROJECT INTRODUCTION

The Marketplace Department has authorized the planting of eight new Trees on the Pedestrian Mall in Downtown Burlington, Vermont and bricking over three unused tree pits. Specifications for the tree planting are included in section 4 of this invitation to bid.

SECTION 1.01 SCOPE OF WORK

This work shall include all labor, materials, equipment, supplies, and services as needed for:

- A. Planting trees
- B. Initial maintenance and guarantee of plant materials
- C. Permanently eliminate three identified tree pits: 1) NORTHWEST CORNER of Church & Bank Streets; 2) SOUTHEAST CORNER OF Church & Bank intersection; 3) Between 103 and 107 Church Street (photos of each location end of this proposal). Remove stump, level surface, brick over. Owner will provide bricks.

SECTION 2.0: PROPOSED SCHEDULE

- 1. Invitation to Bid issued:
- 3. Written questions due from proposers:
- 4. Responses to questions sent week of:
- 5. Proposals due by 5:00 p.m.:
- 6. Evaluation team will select the preferred proposal by week of

SECTION 2.1: PROPOSAL DUE DATE AND LOCATION

Proposals shall be delivered to the Marketplace Department offices listed below on or before 5:00 p.m. on Monday, December 21, 2015. Late submissions may not be accepted. Faxed or electronic mail submissions will not be accepted. Four (4) copies of the proposal must be submitted on standard 8-1/2 x 11-inch paper. The selected consultant will be required to provide an electronic copy of the proposal after selection.

Deliver submissions to
Ron Redmond Executive Director
Church Street Marketplace District
2 Church Street, Suite 2A
Burlington, VT 05401

DIRECTIONS TO OUR OFFICE: The Church Street Marketplace office is located at 2 Church Street, Richardson Place Building, on Church Street's top block (intersection of Church and Pearl Streets.) From Church Street's east side, look for sign on 2 Church Street building: "Richardson Place Office Entrance." Sign located between Top of the Block Sandwich Shop and Downtown Danform Shoes. Walk through double doors. Take stairway or elevator up to second floor. Turn left to reach our offices, located in Suite 2A, right next to elevator.

Please mark the outside of the package with the title, "Church Street Marketplace Tree Planting." Please mark the outside of the package with the due date and time, and with the name and address of the firm submitting the proposal.

SECTION 2.2: CONTACT

All questions regarding this request for proposals should be submitted to Ron Redmond in writing. If questions result in the modification of this Invitation to Bid, the written modification will be distributed

to all recipients of the original Invitation to Bid. All proposers should contact Ron Redmond to notify him that they would like a copy of the responses to all submitted questions. No questions will be answered by phone or in-person. The department contact cannot vary the terms of the Invitation to Bid.

The Marketplace Department reserves the right to modify or issue amendments to this Invitation to Bid. If questions result in the modification of this invitation, the written modification will be distributed to all recipients of the original Invitation to Bid and posted on the City's web site.

SECTION 2.3: PROPOSAL FORMAT AND SUBMITTALS

Within the package titled "Church Street Marketplace Tree Planting" include a submittal/envelope clearly marked "Proposal: Church Street Marketplace Tree Planting."

The proposal must be submitted on standard 8 1/2 x 11-inch paper and shall not exceed 25 pages. The content of all proposals for this work shall address the following issues:

SECTION 2.3 PROPOSAL DELIVERY

Proposals arriving after the specified time of opening, whether sent by mail, courier, or in person, may not be accepted. These proposals may either be refused or will be returned unopened. It is the proposing firms' responsibility for timely delivery regardless of the methods used. Mailed proposals which are delivered after the specified time of opening may not be accepted regardless of the postmarked date or time on the envelope.

Electronically e.g. e-mail, fax, transmitted proposals are prohibited, nor will the Church Street Marketplace transmit proposal documents to prospective firms electronically.

SECTION 2.4 WITHDRAWALS AND DECLINATIONS

A written request for the withdrawal of a proposal may be granted if the request is received by the Executive Director, Marketplace Department, or his/her designee prior to the specified time of opening. After the opening, the proposing firm cannot withdraw or cancel its proposal for a period of sixty (60) calendar days, and such proposals will be binding during that time.

SECTION 2.5 NON-ACCEPTANCE OF PROPOSALS

No proposal shall be accepted from, or contract awarded to, any person, firm, or corporation that is in arrears or is in default to the City of Burlington upon any debt or contract, or that is a defaulter, as surety or otherwise, upon any obligation to the City of Burlington, or who has failed to satisfactorily perform any previous contract with the City of Burlington.

SECTION 2.6 PROPOSAL OPENING PROCEDURES

The opening of all proposals shall commence immediately after the stated delivery date and time deadline in the Request for Proposals, in the Marketplace Department offices, 2 Church Street, Burlington, VT and all prices shall be publicly read or posted. The opening and reading of all proposals shall, however, be subject to the City's rules regarding bonds and any other applicable regulations, as well as the requirements of this document. All prospective firms and the public may attend the proposal opening.

SECTION 2.7 PROPOSAL REVIEW PROCEDURES

After proposal opening is completed, the Marketplace Department will then take all proposals under review. The Marketplace Department will generally endeavor to complete its evaluation of proposals and render a decision within sixty (60) days after the opening of proposals. The Marketplace Department may need to extend the decision deadline if the complexity of a project or product purchase warrants an extension. The Marketplace Department will so inform the submitted Proposal firms.

SECTION 2.8 COMPETENCY OF PROPOSING FIRMS

The opening and reading or posting of proposals shall not be construed as acceptance of the proposing firms as being qualified, responsible candidates. The Marketplace Department reserves the right to determine the competence, financial and operational capacity of proposal firm. Upon request by the Marketplace Department, the proposing firm shall furnish evidence as may be required to evaluate its ability and resources to accomplish the services or furnish the product required by this Invitation to Bid. The Marketplace Department shall unequivocally be the sole and final judge of such competency, and its decision shall be final and shall not be subject to recourse by any person, firm, or corporation.

SECTION 2.9 INVESTIGATION BY PROSPECTIVE PROPOSERS

It shall be the responsibility of the proposing firm to thoroughly read and understand the information, instructions, specifications, and requirements. Proposing firms are expected to fully inform themselves as to the requirements for the provision of the specified goods or services before submitting proposals. Failure to do so is at their risk. No plea of error or plea of ignorance by the proposing firm of conditions that exist or that may hereafter exist as a result of failure or omission on the part of the proposing firm to make the necessary examinations and investigations will be accepted as a basis for varying the requirements of the Marketplace Department. The submission of a proposal means that the proposing firm has familiarized itself with all conditions, requirements, and specifications, and intends to comply with them (unless specifically noted otherwise in writing) without exception.

SECTION 2.10 PROPER COMPLETION OF PROPOSAL DOCUMENTS

Proposal documents must be signed by an officer or employee of the bidder having the authority to bind the company or firm by signature. All signatures must be properly done in ink in the proper spaces. If a corporation is submitting a proposal, the signatures must be attested to by the Corporate Secretary or other authorized officer of the corporation.

All blanks on documents must be correctly filled in, using ink or entered in typed form. Any erasures or error corrections must be initialed in ink.

SECTION 2.11 CONTRACT AWARD

After reviewing the proposals and selecting a preferred contractor the Marketplace Department will seek authorization through the City of Burlington to award a contract. Notice to Proceed will be issued after authorization is granted.

SECTION 3 GENERAL PROVISIONS

A. Bidding requirements, general and special conditions and other special requirements are hereby made part of the general specifications. Standard specifications of technical or professional societies and Federal, State or local agencies referred to shall include all amendments as of the date of advertisement for bids.

B. These specifications include standards necessary for and incidental to the execution and completion of planting, including excavation (mechanical and if needed, by hand), removal of debris, spreading of topsoil, finished grading and site restoration on the prepared drawing and specified herein as needed.

SECTION 3.1 SAFETY

While working within the City of Burlington and within the Marketplace Department rights-of-way, the contractor shall conform to VTrans Standard Specifications for Road and Bridge Construction for work zone safety. The contractor shall be responsible for contacting and coordinating all utility location requests and markings prior to installation. Any damage to utilities shall be the sole responsibility of the contractor and costs associated with repairs shall be incidental to the contract.

SECTION 3.2 REMOVAL OF EXISTING TREE MATERIAL

Existing tree material within a 5' diameter of a new planting shall be removed and disposed of properly.

SECTION 3.3 EXCAVATION

Holes for trees shall be dug at the location indicated by a stake and/or ground painting set by Marketplace Department personnel. The minimum diameter and depth of the hole will depend upon the size of the root ball; therefore each planting excavation should be sized in accordance with recognized horticultural practices.

SECTION 3.4 INSTALLATION TIMEFRAME

All trees shall be installed by.

SECTION 3.5 LOCATION OF TREE PLANTING

Trees will be planted within the Church Street Marketplace District right of way.

SECTION 4 SPECIAL PROVISIONS

SECTION 4.01 DESCRIPTION

Planting of eight (8) Princeton Elms on the Church Street Marketplace District, a public street in the City of Burlington. All permitting managed through the Marketplace Department office. The painting to be, coordinated with the scheduled replacement of trees under warranty, by Wright & Morrissey Construction, Spring, 2016

SECTION 4.02 RELATED REQUIREMENTS

A. Review the General Contract Conditions and Section One, General Provisions, which contain information and requirements that apply to this Section.

B. Work Included: Provide planting of trees as shown and as specified.

C. Related Work in Other Sections:

Special Provision Soil Preparation

SECTION 4.03 QUALITY AND PERFORMANCE ASSURANCES

A. Certificates:

1. Submit certificates of inspection as may be required by local law for transportation of each shipment of plants along with invoice.

2. File copies of certificates after acceptance of material. Inspection by Federal or State Governments at place of growth does not preclude rejection of plants at project site.

B. Applicable Standards: Apply standards for plant materials as described in the following:

1. "American Standard for Nursery Stock," May 2, 1986 Edition, American Association of Nurserymen, Inc. This shall supersede these criteria in the event of contradiction or ambiguity.

2. Hortus III - 1976 Edition, Bailey Hortorium, Cornell University.

C. Provide one person who shall be present at all times during execution of the work, who is thoroughly familiar with the types of materials used and execution of the work, and who shall direct all work under this section.

D. Use all means necessary to protect materials and appurtenances before, during and after installation including proper storage. Plant materials shall be handled in accordance with the American Standard for Nursery Stock, ANSI Z60 - I - 2004, as defined by the American Association of Nurserymen. Follow the manufacturers recommended procedures for unloading, storage and installation where applicable.

E. In the event of damage or theft make all necessary repairs and replacement at no additional cost to the owner.

F. Ship plant materials with certificates of inspection as required by governing authorities. Comply with all regulations applicable to landscape materials.

G. Do not make unauthorized substitutions. If specified plant materials are not obtainable, submit proof of non-availability to the Owner or his/her designee together with a proposal for use of comparable materials.

H. The Owner or his/her designee may inspect trees & shrubs either at place of growth or at the site prior to planting for genus, species, variety, size, and quality. Owner or his/her designee retains the right to further inspect trees and shrubs for size and condition of root balls and root systems, insects, injuries and latent defects, and to reject unsatisfactory or defective material at any time during progress of the work. Remove rejected trees or shrubs immediately from the project site.

I. Plant materials shall be in accordance with the American Standard for Nursery Stock, ANSI Z60.1-2004, as defined by the American Association of Nurserymen. H. Product shall conform with CU Structural Soil Specifications as patented by Cornell University, patent #5,849,069. The product shall be obtained from a licensed producer and proof of such licensing shall be submitted to the Project Owner or his/her designee prior to delivery.

SECTION 4.04 SUBMITTALS

A. Samples: Submit prior to delivery to site. Attach product name, address of manufacturer and/or supplier to each sample.

1. Mulch: One (1) pint.

2. Nylon Tree Strap: One (1)

SECTION 4.05 WORK SCHEDULE

A. Proceed with the work as rapidly as the site becomes available, consistent with normal seasonal limitations for planting work.

SECTION 4.06 SELECTION, TAGGING AND ORDERING OF PLANT MATERIAL

A. Documentation: Submit documentation within 10 days after award of Contract that all plant materials have been ordered. Arrange procedure for review of plant materials at time of submission.

B. Review: Request for review of plant materials and quantity at place of growth or from nursery shipment site at least 7 days in advance of shipping to site. Right is reserved to refuse review at this time if, in Owner or his/her designee's judgment, a sufficient quantity of plants is not available.

C. Transportation: Contractor shall accompany Owner or his/her designee to all review(s) of plant materials at the nursery. Owner or his/her designee will review and tag plants at place of growth and upon delivery for conformity to specifications.

D. Distant Material: Submit photographs with a person adjacent to plants for preliminary review. Such review shall not impair the right of review and rejection during progress of the work.

E. Unavailable Material: If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety with corresponding adjustment of Contract price. Substantiate such proof in writing no later than 20 days after award of contract. Approval of late substitutions is at the sole discretion of the Owner or his/her designee

SECTION 4.07 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Labeling: Furnish standard products in manufacturer's standard containers bearing original labels legibly showing quantity, analysis, genus/species and name of manufacturer/grower.

B. Storage: Store products with protection from weather or other conditions that would damage or impair the effectiveness of the product. Protect metal containers from sun during summer months with temperatures above 80 degrees F.

C. Handling: Do not lift or handle container plants by tops, stems or trunks at any time. Do not bind or handle plants with wire or rope at any time.

D. Anti-Desiccant: At Contractor's option, spray all evergreen or deciduous plant material in full leaf immediately before transporting with anti-desiccant. Apply an adequate film over trunks, branches, twigs and foliage.

E. Digging: Dig ball and burlap plants with firm, natural balls of earth of diameter not less than that recommended by USDA Standard for Nursery Stock, and of sufficient depth to include the fibrous and feeding roots.

SECTION 4.08 ANALYSES OF SAMPLES AND TESTS

- A. Sampling: Right is reserved to take and analyze samples of materials for conformity to specifications at any time. Furnish samples upon request.
- B. Rejected Materials: Remove rejected materials immediately from the site at Contractor's expense. Pay cost of testing of materials not meeting specifications.

SECTION 4.09 MAINTENANCE PERIOD AND FINAL ACCEPTANCE

See also **SECTION 7 MAINTENANCE**

- A. Maintenance shall begin immediately after each plant is planted and continue until the guarantee period is completed and final acceptance has been confirmed by the Owner or his/her designee.
- B. Maintenance shall consist of pruning, watering, cultivating, weeding, mulching, tightening and repairing guys and stakes, resetting plants to proper grades or upright position, restoration of the planting saucer, and furnishing and applying such sprays or other materials as are necessary to keep plantings free of insects and disease and in healthy and thriving condition.
- C. Maintenance includes maintaining proper soil moisture during the guarantee period. The scope of work includes watering the plant materials as needed to provide proper moisture levels for the plant materials.

SECTION 4.10 WARRANTY PERIOD

- A. Warranties:
 - 1. Correct Species: Warrant that all plant materials are true to species and variety.
 - 2. Vigor: Warrant that all trees planted (except those species specifically noted below) under this Contract will be healthy and in flourishing condition of active growth one year from date of Final Acceptance.
- B. Delays: All delays in completion of planting operations that extend the planting into more than one planting season shall extend the Warranty Period correspondingly.
- C. Condition of Plants: Plants shall be free of dead or dying branches and branch tips, with all foliage of a normal density, size and color.
- D. Replacements: As soon as weather conditions permit, replace, without cost to Owner all dead plants and all plants not in a vigorous, thriving condition, as determined by Owner or his/her designee during and at the end of Warranty Period. Replacement trees shall have similar warranty for one year from date of replacement planting.
- E. Exclusions: Contractor shall not be held responsible for failures due to neglect by Owner, vandalism, etc., during Warranty Period. Report such conditions in writing to the Owner or his/her designee.

SECTION 4.11 REPLACEMENTS

- A. Guarantee: For a period of two (2) years after final acceptance of all work and at no additional cost to the Owner, the Contractor is to replace any new or transplanted plant material that is dead, or that is, in the opinion of the Owner or his/her designee, in unhealthy or unsightly condition, or that has lost their natural shape due to dead branches or excessive pruning of dead branches, or that has been damaged beyond repair due, in the judgment of the Owner or his/her designee, to inadequate maintenance and/or protection from animal damage or the natural elements.
- B. Failed Materials:
 - 1. Plant materials exhibiting conditions which are determined as being unacceptable due to workmanship by the Contractor shall be repaired and/or replaced at no additional cost to the Owner as determined by Owner or his/her designee.
 - 2. Closely match replacements to adjacent specimens of the same species. Apply all requirements of this Specification to all replacements.
 - 3. Contractor shall be held responsible for a maximum of two (2) replacements for each failed tree after final acceptance during warranty period.
- C. Incorrect Materials:
 - 1. During Warranty Period, replace at no cost to Owner all plants revealed as being untrue to name.

2. Provide replacements of a size and quality to match the planted materials at the time the mistake is discovered.

D Existing Tree Protection: In addition to any other criminal or civil penalty, if , as the result of the violation, the injury, mutilation, or death of a tree, shrub, or other plant located on the Owner.s property is caused, the cost of repair or replacement of such tree, shrub, or other plant shall be borne by the party in violation. Replacement value of trees and shrubs shall be determined in accordance with the latest revision of "Valuation of Landscape Trees, Shrubs, and Other Plants,. as published by the International Society of Arboriculture.

SECTION 5 PRODUCTS

SECTION 5.01 PLANT MATERIALS

A. General: Verify that all container stock has been grown in the containers in which delivered for at least two (2) months, but not over two (2) years for shrubs or one (1) year for perennial and groundcovers. Do not install container plants that have cracked or broken balls of earth when taken from container.

1. Growing Conditions: Plants shall be nursery-grown in accordance with good horticultural practices under similar climatic conditions to those of the project for at least two(2) years unless otherwise specifically authorized. Collected material shall be identified for approval by the Owner or his/her designee.

2. Appearance: All plants shall be exceptionally heavy, symmetrical, tightly knit, and so trained or favored in development and appearance as to be superior in form for their species, with regard to number of branches, compactness and symmetry.

3. Vigor: Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insect pests, eggs, or larvae. They shall have healthy, well-developed root systems. Plants shall be free from physical damage or adverse conditions that would prevent thriving growth.

B. Condition of Root System: Samples must prove to be completely free of circling, kinked or girdling trunk surface and center roots and show no evidence of a root-bound condition.

C. Measurements:

1. General: Measure plants when branches are in their normal upright position. Height and spread dimensions specified refer to main body of plant and not branch tip to tip. Take caliper measurement at a point on the trunk 6 in. above natural ground line for trees up to 4 in. in caliper and at a point 12 in. above the natural ground line for trees over 4 in. in caliper.

2. Size Range: If a range of size is given, do not use plant materials less than the minimum size. Not less than 40 percent of the plants shall be as large as the maximum size specified. The measurements specified are the minimum size acceptable and are the measurements after pruning, where pruning is required. Plants that meet the measurements specified, but not possess a normal balance between height and spread shall be rejected.

3. Substitutions: Substituted plants shall be true to species and variety and shall conform to measurements specified except that plants larger than specified may be used if accepted. Use of such plants shall not increase Contract price. If larger plants are accepted, increase the ball of earth in proportion to the size of the plant.

D. Pruning: Do not prune plants before delivery. For pruning after installation, see Section 8 - Landscape Maintenance.

E. Condition: Trees which have multiple leaders, unless specified, or damaged or crooked leaders, will be rejected. Trees having a main leader shall not have been headed back. Trees with abrasions of the bark, sunscalds, disfiguring knots, or fresh cuts of limbs over 3/4 in. which have not completely callused, will be rejected.

SECTION 5.02 TOPSOIL

Topsoil shall be of a quality which will support healthy, vigorous plant growth. Topsoil shall be a natural workable loam, free of refuse, roots, stones, brush, weeds, residual herbicides, or other material which would be detrimental to proper application or proper development of plant growth. Topsoil shall be obtained from an area which has demonstrated, by a healthy growth of grass, cultivated crops, or wild vegetation, that it is of good quality and reasonably free draining.

SECTION 5.03 COMPOST

Compost shall have these minimum characteristics:

pH 6.0-8.0

Moisture content 35%-50%

Particle size 3/8" minus

C:N ratio 15-25:1

Organic Matter 45%

Total Nitrogen (N) 1.5%-2%

Phosphorous (P) 0.5%-1%

Potassium (K) 0.08% - 0.20%

Bulk density <1100 lbs / cubic yard

During production, compost shall be maintained at 55 degrees Celsius for a minimum of three consecutive days for pathogen reduction and weed-seed elimination. Compost shall meet EPA vector attraction, reduction criteria and be free from any foreign material toxic to plant growth and shall be free from noxious odors. Local sources of compost shall be used on this project.

SECTION 5.04 CU STRUCTURAL SOIL

A. Product shall conform with CU Structural Soil Specifications as patented by Cornell University, patent #5,849,069. The product shall be obtained from a licensed producer and proof of such licensing shall be submitted to the Project Owner or his/her designee prior to delivery.

SECTION 5.05 PLANT MATERIALS

A. Plants shall be true to species and variety specified and nursery grown in accordance with good horticultural practices under climatic conditions similar to those in the locality of the project for at least 2 years. They shall have been freshly dug, heavy, symmetrical, so trained or favored in development and appearance as to be unquestionably superior in form, compactness, and symmetry. They shall be sound, healthy, vigorous, well branched and densely foliated when in leaf, and free of disease and insects (eggs or larvae). They shall have healthy, well-developed root systems and shall be free from physical damage or other conditions that would prevent thriving growth.

B. Plants shall not be pruned before delivery. Trees with multiple leaders, unless specified will be rejected. Trees with a damaged or crooked leader, torn or abraded bark, sunscald, disfiguring knots, insect damage, disease damage, or wilt will be rejected.

C. For all plant materials, the specifications for height, caliper, width, root ball size, container size, height to caliper ratio, shall conform to the American Standard for Nursery Stock, ANSI Z60.1-2004, American Association of Nurserymen. Plants shall conform to the measurements specified, except that plants larger than those specified may be used if approved by the Owner or his/her designee. Use of larger plants shall not increase the contract price. If larger plants are approved, the root ball shall be increased in proportion to the size of the plant.

Caliper measurements shall be taken on the trunk 6 inches (15 cm) above the natural ground line for trees up to 4 inches (10 cm) in caliper, and 12 inches (30 cm) above the natural ground line for trees over 4 inches (10 cm) in caliper. Height and spread dimensions specified refer to the main body of the plant and not from branch tip to branch tip. Plants shall be measured when branches are in their normal position. If a range of size is given, no plant shall be less than the minimum size specified. Measurements specified are minimum size acceptable after pruning, where pruning is required. Plants that meet measurements but do not possess a normal balance between height and spread shall be rejected.

D. Substitutions of plant materials will not be permitted unless authorized in writing by the Owner or his/her designee. If proof is submitted, substantiated in writing, that a plant specified is not obtainable, consideration will be given to the nearest available size or similar variety with a corresponding adjustment of the contract price.

E. All plants shall be labeled by plant name and size. Labels shall be attached securely to all plants, bundles, and containers of plant materials when delivered. Plant labels shall be durable and legible, with information given in weather-resistant ink or embossed process lettering.

SECTION 5.06 SHREDDED BARK MULCH

Mulch shall be mechanically shredded hemlock bark. Shreds shall be 1/8 inch nominal thickness, 50% shall be one inch or less and no pieces shall exceed three inches in length. The mulch shall be free of wood chips and materials injurious to plant growth or the public. Organic mulch, free from deleterious materials and suitable as a top dressing of trees and shrubs. Dyed mulch shall not be accepted on this project

SECTION 5.07 ANTI TRANSPIRANT

Anti-transpirant shall be an emulsion that provides a protective film over plant surfaces and is nontoxic to all plants used. It shall be delivered in containers of the manufacturer and mixed according to the manufacturer's directions.

SECTION 5.08 PEAT

Peat shall be finely divided, so completely decomposed and free of fibers that its' biological identity is lost. Provide in granular form, free of hard lumps and with pH range suitable for intended use.

SECTION 5.9 BONEMEAL

Bonemeal shall be commercial, raw, finely ground, 4 percent nitrogen and 20 percent phosphoric acid.

SECTION 5.10 COMMERCIAL FERTILIZERS

A. Top-dress Fertilizer: Complete fertilizer, 50 percent of the nitrogen to be derived from natural organic sources or urea-form. Available phosphoric acid shall be from superphosphate, bone or tankage. Potash shall be derived from muriate of potash containing 60 percent potash:

16% Nitrogen

6% Phosphoric Acid

8% Potash

B. Perennials: Diammonium Phosphate (18-46-0).

SECTION 5.11 STAKING MATERIALS

A. Tree Stakes: Rough-sawn, sound, new hardwood, free of knots, holes, cross grain, and other defects, 2 by 2 inches by length indicated, pointed at one end.

B. Wire Ties: 11 gauge, single strand, galvanized steel.

C. Nylon Straps: 2. X 12. wide nylon/cotton weave with grommet at each end as accepted by Owner or his/her designee.

SECTION 5.12 GUYING MATERIALS

A. Anchor and Hardware:

1. Standard Steel. T. posts, dark green; 2.-6. long. Cut flush to the ground after guying trees.

2. Hardware: 11 gauge, single strand, galvanized steel wire ties with rubber, two-ply, dark-colored, 1/2.-5/8. diameter protective hose loops or approved equal.

3. Plastic Guy Covers: 3/8 in. diameter x 3 ft. long white plastic tubing. Provide for all guyed installations as identified in the field by the Owner or his/her designee.

SECTION 5.13 TREE PROTECTION MATERIALS

A. Tree Wrap: Tree wrapping material shall be first quality, 4. wide bituminous, impregnated tape, corrugates or crepe brown paper, specifically manufactured for tree wrapping and having a quality to resist insect infestation.

SECTION 5.14 WATER

A. Clean, fresh and potable, furnished and paid for by Owner.

SECTION 5.15 ANTI-DESICCANT

A. Type: Anti-desiccants for retarding excessive loss of plant moisture and inhibiting wilt shall be sprayable, water insoluble vinyl-vinylidene complex which will produce a moisture retarding barrier not removable by rain or snow.

B. Manufacturer: Wilt-pruf Formula NCF as manufactured by Nursery Specialty Products, Greenwich, CT, or accepted equal.

SECTION 6 EXECUTION

SECTION 6.01 EXCAVATION

A. Tree pits are to be excavated as shown on the attached drawing.

B. Subgrade soils shall be separated from the upper topsoil and removed immediately wherever encountered during planting operations. If tree pits are excavated with mechanical equipment, scarify the sidewalls and bottom prior to planting.

C. The Owner or his/her designee shall be notified, in writing, of soil conditions that the contractor considers detrimental to the growth of plant material. These conditions are to be described as well as suggestions for correcting them. Proper water drainage must be assured.

D. If bedrock, underground construction work, utilities, tree roots, or obstructions are encountered in the excavation of plant pits, alternate locations shall be selected by the Owner or his/her designee. Where locations cannot be changed as determined by the Owner or his/her designee, submit written cost estimate required to remove the obstruction to a depth of not less than 6 inches (15 cm) below the required pit depth. Proceed with work only after a Change Order is approved by the Owner.

SECTION 6.02 PLANTING OPERATIONS

A. General:

1. Protect plants at all times from sun or drying winds. Plants must be protected at all times from sun or drying winds. Plants shall not be bound with wire or rope so as to damage the bark or break branches. Plants shall be lifted and handled with suitable support of the root ball to avoid damage.

2. Keep plants that cannot be planted immediately upon delivery in the shade, well-protected and well-watered. Plants shall not remain unplanted any longer than three days after delivery to the site.

3. Heel in and protect with burlap all B&B plant materials which cannot be planted upon delivery.

B. Handling and De-potting of Plant Materials:

1. Balled and Burlap Plants: Avoid all damage to rootballs. If rootball is cracked or broken during handling plant will be rejected. Lift and carry by bottom of ball only. Do not remove wrapping until plant is set in plant pit. Cut and remove all wire completely from around root ball and peel burlap away from upper 1/2 of rootball prior to backfilling.

C. Installation:

1. Scarification:

a. Plant Rootball: After removing plant from container, scarify the sides of the rootball to a depth of 1 in. at four to six equally-spaced locations around the perimeter of the ball. Completely sever or remove all circling roots over 3/8 in. diameter.

b. Plant Pit: Excavate deep enough to accommodate the ball and bed of prepared back fill mix. Compact before setting of plants. Scarify sides of plant pit, thoroughly breaking up all surfaces and eliminating all "glazed" areas.

2. Positioning: Top of rootball should be placed at same level that the plant material was grown in the nursery. Thoroughly foot tamp all backfill. Position plant in planting pit, maintaining plumb condition.

3. Backfilling:

a. Use backfill mix as specified in **CU STRUCTURAL SOIL**, to backfill plant pits. Brace each plant plumb and rigidly in position until planting soil has been tamped solidly around the ball and roots.

b. When plant pits have been backfilled approximately 2/3 full, water thoroughly and saturate rootball, before installing remainder of the backfill mix to top of pit, eliminating all air pockets.

4. Staking and/or Guying: When required, stake or guy as detailed.

D. Adjustment: Adjust plants so that after full settlement has occurred, the grade at the base of the plants is 2 in. above the adjacent planting finish grade.

E. Watering Basin: Form saucer with 3 in. high berm centered around tree and shrub pits 12 in. wider than ball diameter.

F. Watering: Water all plants immediately after completion of planting operations.

G. Labels: Remove all nursery-type plant labels, wires and ties from plants. A. Plants must be protected at all times from sun or drying winds. Plants that cannot be planted immediately on delivery shall be kept in the shade, well protected with soil, covered with wet mulch or other acceptable material, and kept well watered. Plants shall not remain unplanted any longer than three days after delivery to the site. Plants shall not be bound with wire or rope so as to damage the bark or break branches. Plants shall be lifted and handled with suitable support of the root ball to avoid damage.

H. Prior to digging the tree pit, inspect the root ball and remove any soil that is above the level of the original trunk flare and main order roots. Remove any adventitious girdling roots. Plant the tree so the original trunk flare and main order roots are at finished grade or slightly above. In poorly drained soils, raise the trunk flare and root ball up to four inches above finished grade. Dig the tree pit to a depth that allows the root ball to sit on undisturbed soil to prevent future settlement. Street-side Greenbelt tree locations shall have a tree pit with a five foot diameter. For trees in the House-side Greenbelt, dig the tree pit three times the diameter of the root ball. Plants must be set plumb and braced in position until the approved backfill mixture has been tamped solidly around the ball and roots.

I. Wire baskets, ropes, strings, and wrapping from the top 2/3 of the ball are to be removed after the plant has been set. The balance of the wrappings are to be left intact under the ball. All waterproof or non-degradable wrappings shall be removed from the ball. All containers shall be removed from the ball.

J. Plant pits shall be backfilled with a mixture approved by the Owner or his/her designee. When pits are approximately 2/3 full, they shall be thoroughly watered to eliminate air pickets. After this initial watering, topsoil is to be installed to the top of pit and watered. Puddled soil conditions are to be avoided.

K. Soil saucers shall be constructed around tree and shrub pits as shown on drawings.

L. Planting areas are to be finish-graded to conform to grades on drawing after full settlement has occurred.

M. Plant beds shall receive a layer of black weed barrier fabric if indicated on the contract drawings.

N. Plantings shall receive a 3 inch layer of shredded bark mulch.

O Plants shall be thoroughly watered immediately after planting. Mulch shall not be in contact with the trunk.

SECTION 6.03 REPLANT REVIEW

A. General: Do not commence planting work prior to acceptance of soil preparation.

B. Finish Grades: Finish grades for all planting areas shall have been established by in accordance to the grading plans. Verify that all grades are within 1 in. plus or minus of required finish grade and that all soil amendments have been installed as specified under Section 02916 Soil Preparation.

C. Notification: Submit written notification of all conditions inconsistent with specifications for soil preparation and mixing as described in Special Provision Soil Preparation . 900.608.

SECTION 6.04 LAYOUT AND EXCAVATION OF PLANTING AREAS

- A. Layout and Staking: Lay out all trees as shown on Drawings. Owner and Owner or his/her designee reserves the right to review and adjust plant locations.
- B. Review: Locations of plants will be checked in the field and will be adjusted to exact position before planting begins. Right is reserved to refuse review at this time if, in the Owner or his/her designee's opinion, an insufficient quantity of plants is available.
- C. Equipment for Digging Plant Pits: Use of an auger or vernier spade to dig plant pits is prohibited. Backhoe is acceptable, with scarification of the tree pit after excavation - see below.
- D. Plant Pits: Prior to digging the tree pit, inspect the root ball and remove any soil that is above the level of the original trunk flare and main order roots. Remove any adventitious girdling roots. Plant the tree so the original trunk flare and main order roots are at finished grade or slightly above. In poorly drained soils, raise the trunk flare and root ball up to four inches above finished grade. Dig the tree pit to a depth that allows the root ball to sit on undisturbed soil to prevent future settlement. Street-side Greenbelt tree locations shall have a tree pit with a five foot diameter. For trees in the House-side Greenbelt, dig the tree pit three times the diameter of the root ball. Plants must be set plumb and braced in position until the approved backfill mixture has been tamped solidly around the ball and roots. Excavate tree and shrub to a minimum of twice the diameter of the ball or container, in accordance with Drawings.
- E. Wire baskets, ropes, strings, and wrapping from the top 2/3 of the ball are to be removed after the plant has been set. The balance of the wrappings are to be left intact under the ball. All waterproof or non-degradable wrappings shall be removed from the ball. All containers shall be removed from the ball.
- F. Plant pits shall be backfilled with a mixture approved by the Owner or his/her designee. When pits are approximately 2/3 full, they shall be thoroughly watered to eliminate air pickets. After this initial watering, topsoil is to be installed to the top of pit and watered. Puddled soil conditions are to be avoided.
- G. Soil saucers shall be constructed around tree and shrub pits as shown on drawings.
- H. Planting areas are to be finish-graded to conform to grades on drawing after full settlement has occurred.
- I. Plant beds shall receive a layer of black weed barrier fabric if indicated on the contract drawings.
- J. Plantings shall receive a 3 inch layer of shredded bark mulch.
- K. Plants shall be thoroughly watered immediately after planting. Mulch shall not be in contact with the trunk. E. Sub-grade soils shall be separated from the upper topsoil and removed immediately wherever encountered during planting operations
- L. The Owner or his/her designee shall be notified, in writing, of soil conditions that the contractor considers detrimental to the growth of plant material. These conditions are to be described as well as suggestions for correcting them. Proper water drainage must be assured.
- M. If bedrock, underground construction work, utilities, tree roots, or obstructions are encountered in the excavation of plant pits, alternate locations shall be selected by the Owner or his/her designee. Where locations cannot be changed as determined by the Owner or his/her designee, submit written cost estimate required to remove the obstruction to a depth of not less than 6 inches (15 cm) below the required pit depth. Proceed with work only after a Change Order is approved by the Owner.

SECTION 6.05 STAKING AND GUYING

- A. General:
 - 1. Trees shall be able to stand upright without support, and shall return to the vertical after their tops have been deflected horizontally and released. Stake or guy trees which do not meet this qualification.
 - 2. All plant materials shall remain plumb and straight for all given conditions from installation through the guarantee period.
- B. Staking:
 - 1. Guying shall only be performed upon direction of the Owner or his/her designee to mitigate strong wind conditions.

2. Locate stakes in a line with trunk of tree, perpendicular to prevailing wind and as close to the main trunk as is practical, avoiding root injury. Drive stakes at least 30 in. into firm ground. See Planting Details.
3. Wire support straps shall be placed around the trunk in a single loop. Run wire through grommets on support strap, tighten, and keep taut.

SECTION 6.06 PRUNING

Plants shall be pruned only at the time of planting and according to standard horticultural practice as defined by the **American Association of Nurserymen**. The natural growth character of the plant shall be enhanced. Only clean sharp tools shall be used.

Also, See **SECTION 7 MAINTENANCE**

SECTION 6.07 MULCHING

A. Install a 2 in. deep layer of specified mulch over all planting areas including tree and shrub watering basins unless otherwise noted on drawings.

SECTION 6.08 TREE WRAPPING

- A. Wrap trunks of deciduous trees with sun-sensitive bark with a spiral wrapping to the height of the third branch.
- B. Wrap from top down and tape wrapping securely in place.

SECTION 6.09 CLEAN-UP

- A. Keep all areas of work clean, neat and orderly at all times.
- B. Clean up and remove all deleterious materials and debris from the entire work area prior to Final Acceptance.

SECTION 7 MAINTENANCE

SECTION 7.01 Maintenance shall begin immediately after each plant is planted and continue until the guarantee period is completed and final acceptance has been confirmed by the Owner or his/her designee.

- A. Maintenance shall consist of pruning, watering, cultivating, weeding, mulching, tightening and repairing guys and stakes, resetting plants to proper grades or upright position, restoration of the planting saucer, and furnishing and applying such sprays or other materials as are necessary to keep plantings free of insects and disease and in healthy and thriving condition.
- B. Maintenance includes maintaining proper soil moisture during the guarantee period. The scope of work includes watering the plant materials as needed to provide proper moisture levels for the plant materials.

SECTION 7.02 Additional maintenance may be required by Contractor for all existing trees in close proximity to construction activities to reduce stress related tree problems.

SECTION 7.03 ROOT PROTECTION:

- A. Trees having roots cut between the months of March and August may be required to receive supplemental deep root watering once per week for a minimum of two months after the date of the root cut. When roots are cut between September 1 and October 15, supplemental watering is needed once per week until October 31.
- B. Tree roots shall not be fertilized for a period of one year following the cessation of construction activities.

SECTION 7.04 COMPACTION MITIGATION

- a. Soil around tree drip line shall be aerated before and after construction activities. This is necessary even when compaction results from heavy foot traffic. Conventional turf aeration equipment is acceptable, although the Landscape Architect may approve deeper aeration.
- b. When foot traffic or equipment use is unavoidable within the drip line, the area within drip line shall be mulched with wood chips to a depth of six inches prior to construction activity. Six inch mulch depth shall be maintained for the duration of the project, and shall be removed upon completion.

SECTION 7.05 PRUNING

No pruning shall occur during or after construction activities except for the removal of dead or damaged branches, or to prevent branch damage. Pruning of healthy branches shall be delayed for a period of two years.

SECTION 8 ACCEPTANCE

A. The Owner or his/her designee shall inspect all work for acceptance within 10 days of receiving a request by the contractor. The Owner or his/her designee shall issue a written list of all repairs, completions, and replacements required for acceptance.

B. Upon completion of the items on the inspection list, the Owner or his/her designee shall certify in writing that the work has been accepted.

SECTION 9 GUARANTEE PERIOD AND REPLACEMENTS

A. The guarantee period for plant materials shall be one year beginning on the date of acceptance.

B. The contractor shall guarantee all plant material to be in healthy and thriving condition for a period of one year from the date of acceptance.

C. The contractor shall replace, without cost, and as soon as weather conditions permit, and within a specified planting period, all plants determined by the Owner or his/her designee to be dead or dying during the guarantee period. Plants with dead or dying branches or branch tips, or with foliage showing un-normal density, size, or color shall be replaced. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to requirements stated in this specification.

D. The guarantee of all replacement plants shall extend for an additional period of one year from the date of their acceptance after replacement. In the event that a replacement plant is not acceptable during the extended guarantee period, the Owner or his/her designee may elect subsequent replacement or credit for that item.

E. The contractor shall make periodic inspections, at no extra cost, during the guarantee period to determine what changes, if any, should be made in the maintenance program. If changes are recommended, they shall be submitted in writing to the Owner or his/her designee.

SECTION 10 PLANTING SEASON

Trees shall be planted from April 15 through October 31. Planting carried out under unseasonable conditions shall be at the risk of the Contractor. The contractor shall assume all risks and additional costs associated with planting during unseasonable times and conditions.

SECTION 11 METHOD OF MEASUREMENT

SECTION 11.01

A. The quantity of Trees will be paid on an (EA) basis to provide planting of trees complete as shown and as specified.

SECTION 11.02 BASIS OF PAYMENT

A. The accepted quantity of Trees will be paid for at the Contract EA price. The warranty period, fertilizers, staking and guying, installation, and mulching shall be paid for incidental to the individual trees.

Pay Items

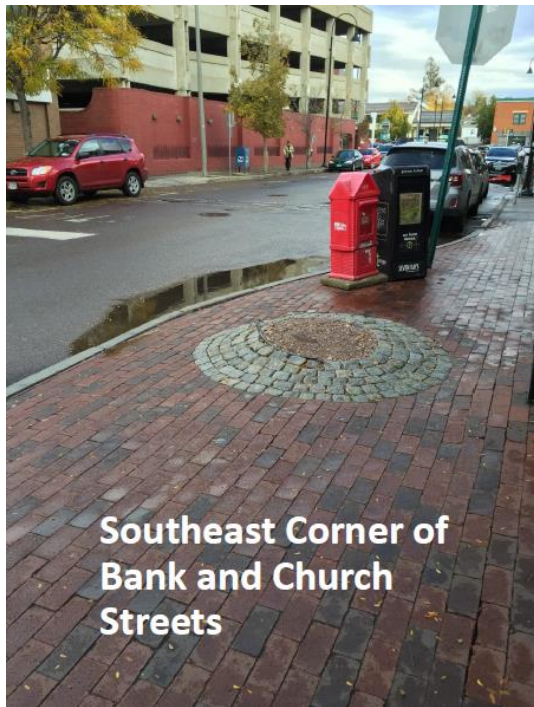
Pay Unit

Princeton Elm
Incidentals

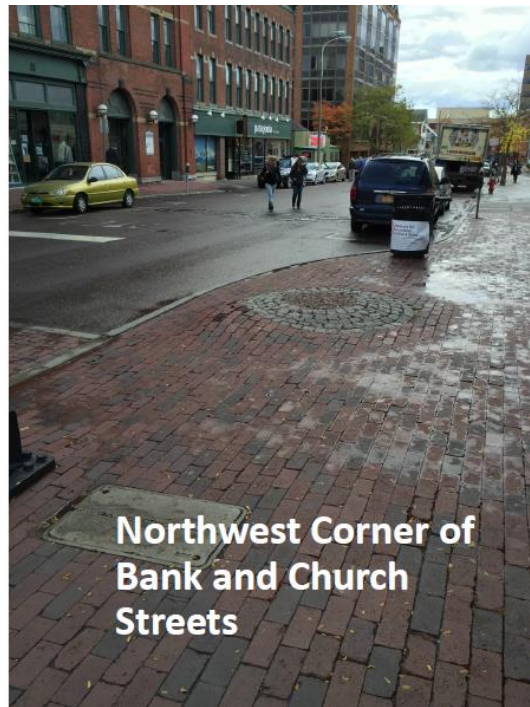
EA
Lump Sum

SECTION 12 LOCATION

Location	Address	Existing Tree	Required Action
City Hall Second tree up from Main	149 Church Street	Zelkova, Dead	Replace with Princeton Elm
Entrance to Office Building	131 Church Street	Zelkova, Dead	Replace with Princeton Elm
Between Optical Center and Church Street Tavern	103-107 Church Street	Honey Locust has been removed	Permanently eliminate this planting location. Remove stump, level surface, brick over. CSM will provide bricks.
NORTHWEST CORNER of Church & Bank Streets	Near 75 Church Street	Honey Locust has been removed	Permanently eliminate this planting location. Remove stump, level surface, brick over. CSM will provide bricks.
SOUTHEAST CORNER OF Church & Bank intersection	Next to TD Bank ATM	Honey Locust has been removed	Permanently eliminate this planting location. Remove stump, level surface, brick over. CSM will provide bricks.
City Sports / Hong's Dumpling Cart (NW corner of Church & Cherry)	29 Church Street	Zelkova, Dead	Replace with Princeton Elm
Bertha Church	32 Church Street	Zelkova, Dead	Replace with Princeton Elm
LuLu Lemon	31 Church Street	Zelkova, Dead	Replace with Princeton Elm
David's Tea	30 Church Street	Zelkova, Dead	Replace with Princeton Elm
Earthbound	24 Church Street	Zelkova, Dead	Replace with Princeton Elm
Downtown Danform Shoes – south of store	2 Church Street	Zelkova, Dead	Replace with Princeton Elm



**Southeast Corner of
Bank and Church
Streets**



**Northwest Corner of
Bank and Church
Streets**



**Tree pit between 103 and
107 Church Street**

NOTE: EXAMINE ENTIRE TREE AND REMOVE ALL NURSERY TAGS, ROPE, STRING, OR SURVEYORS TAPE TO PREVENT FUTURE GIRDLING.

NYLON STRAP
WITH 3/4" GROMMETS,
REFER TO SPECIFICATIONS
INCIDENTAL TO DECIDUOUS TREES, ITEM 656.30

2 1/2" HARDWOOD STAKES. ALIGN STAKES PARALLEL W/ ROAD/ WALKS OR PARALLEL W/ DIRECTION OF PREVAILING WIND, REFER TO TREE STAKING DETAIL, INCIDENTAL TO DECIDUOUS TREES, ITEM 656.30

BREAK APART EDGE OF EXCAVATION -
W/ SHOVEL AND BLEND PLANT MIX
W/ EXISTING SOIL TO PROVIDE
TRANSITION TO UNDISTURBED GRADE

DECIDUOUS TREES, ITEM 656.30

TOP OF ROOTBALL, ROOT FLARE SHALL BE EVIDENT. IF ROOT FLARE IS NOT EVIDENT, THEN SCRAPE OFF THE TOP LAYER OF SOIL. BUILD UP ON TOP OF ROOTBALL FROM NURSERY.

2" HEMLOCK BARK MULCH, ITEM 900.608

REMOVE ENTIRE WIRE CAGE. CUT AND REMOVE BURLAP FROM UPPER HALF OF ROOTBALL.

BACKFILL MIX FOR TREE PLANTING BEDS, REFER TO SPECS S.P. SOIL PREPARATION 900.608 PAID UNDER LANDSCAPE BACKFILL, ITEM 900.608

FINISH GRADE

1'-0" MIN.

18" 8' 18"

- TOP OF ROOTBALL, ROOT FLARE SHALL BE EVIDENT. IF ROOT FLARE IS NOT EVIDENT, THEN SCRAPE OFF THE TOP LAYER OF SOIL BUILD UP ON TOP OF ROOTBALL FROM NURSERY.

- REMOVE ENTIRE WIRE CAGE
CUT AND REMOVE BURLAP FROM UPPER
HALF OF ROOTBALL

BACKFILL MIX FOR TREE PLANTING BEDS,
REFER TO SPECS S.P. SOIL PREPARATION 900.608
PAID UNDER LANDSCAPE BACKFILL, ITEM 900.608